

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A semiconductor light-emitting element comprising:
a substrate;
an electrode of one conductivity type which is formed on said substrate;
~~an intermediate layer formed on said electrode of the one conductivity type, made of at least one of In, Ag, Ni and Cr;~~
a reflective layer which is formed on said ~~intermediate layer~~ electrode, contains a metal, and reflects a light;
a light-emitting layer formed on said reflective layer to emit light, having a double-heterostructure in which an active layer is sandwiched between first and second cladding layers, and containing In(x1), Ga(y1), Al(1-x1-y1) and P(0=<x1, y1=<1, x1+y1=<1), or containing In(x2), Ga(y2), Al(1-x2-y2) and N(0=<x2, y2=<1, x2+y2=<1);
a transparent electrode formed on said light-emitting layer to transmit light; and
a bonding electrode formed on said transparent electrode.
2. - 7. (cancelled)
8. (original) An element according to claim 1, wherein said reflective layer has a two-layered structure made up of a transparent conductive film and a metal.
9. - 14. (cancelled)
15. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:
forming a buffer layer on a transparent semiconductor substrate so as to be lattice-matched with the semiconductor substrate;

sequentially forming a first contact layer, a first cladding layer, a light-emitting layer, a second cladding layer, and a second contact layer on the buffer layer;

partially removing the first cladding layer, the light-emitting layer, the second cladding layer, and the second contact layer to expose a surface of the first contact layer;

forming a first electrode on the exposed surface of the first contact layer; and

forming a second light-reflecting electrode on a surface of the second contact layer.

16. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

sequentially forming a buffer layer, a first contact layer, a first cladding layer, a light-emitting layer, a second cladding layer, and a second contact layer on a semiconductor substrate;

partially removing the first cladding layer, the light-emitting layer, the second cladding layer, and the second contact layer to expose a surface of the first contact layer;

forming a first electrode on the exposed surface of the first contact layer;

forming a second light-reflecting electrode on a surface of the second contact layer; and

forming a light extraction window at a portion of the semiconductor substrate at which the light extraction window faces the second electrode.

17. (previously amended) A semiconductor light-emitting element comprising:

a transparent semiconductor substrate;

a double-heterostructure which is formed on said semiconductor substrate and contains a light-emitting layer and first and second cladding layers that sandwich two surfaces of the light-emitting layer;

a contact layer which is formed on said double-heterostructure and has a recessed surface; and

a light-reflecting electrode formed on the recessed surface of said contact layer.

18. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

sequentially forming a buffer layer, a first cladding layer, a light-emitting layer, a second cladding layer, and a contact layer on a transparent semiconductor substrate;

recessing a surface of the contact layer;
forming a first light-reflecting electrode on the surface of the contact layer; and
forming a second electrode on a surface of the semiconductor substrate so as to remove a portion at which the second electrode faces the first electrode.

19. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

forming a buffer layer on a transparent semiconductor substrate so as to be lattice-matched with the semiconductor substrate;
sequentially forming a first cladding layer; a light-emitting layer, a second cladding layer, and a contact layer on the buffer layer;
recessing a surface of the contact layer;
forming a first light-reflecting electrode on the surface of the contact layer; and
forming a second electrode on a surface of the semiconductor substrate.

20. (currently amended) A semiconductor light-emitting diode comprising at least a light-emitting layer formed on a semiconductor substrate,

wherein a shape of said semiconductor light-emitting ~~[[element]]~~ diode is a polygonal prism having at least five corners or a circular cylinder, and a light extraction surface includes a side surface of said semiconductor light-emitting diode.

21. (original) A semiconductor light-emitting element having a light-emitting layer for emitting light in a direction of plane, comprising;

a photonics crystal layer on at least one surface of the light-emitting layer.

22. (original) An element according to claim 21, wherein said photonics crystal layer is formed on the light-emitting layer on a side of a compound semiconductor light-emitting element opposite to a light extraction surface.

23. (original) An element according to claim 21, wherein said photonics crystal layer is formed on the light-emitting layer on a light extraction surface side of the semiconductor light-

emitting element, and a through dislocation exists on the light extraction surface in a substantially vertical direction to pass light emitted by the light-emitting layer.

24. (currently amended) A semiconductor light-emitting element comprising:
a semiconductor substrate;
a contact layer formed on said semiconductor substrate;
a first cladding layer formed on said contact layer;
a light-emitting layer formed on said first cladding layer, and
a second cladding layer formed on said light-emitting layer,
wherein an interface of said contact layer in contact with said first cladding layer is corrugated to have a gradient index, [[and]] light emitting by said light-emitting layer is reflected by the interface, and a light extraction surface includes a side surface of said semiconductor light-emitting element.

25. (previously amended) A semiconductor light-emitting element comprising:
a semiconductor substrate;
a light-emitting layer formed on one surface of said semiconductor substrate; and
a photonics crystal layer fused on another surface of said semiconductor substrate,
wherein the other surface of said semiconductor substrate has a rounded edge.

26. (original) A semiconductor light-emitting element comprising:
a photonics crystal layer; and
at least one light-emitting element formed on each of two surfaces of said photonics crystal layer,
wherein said light-emitting elements emit light with different emission wavelengths.

27. (original) A semiconductor light-emitting element comprising:
a transparent semiconductor substrate;
a Bragg reflective layer formed on said semiconductor substrate;
an active layer formed on said Bragg reflective layer; and
a photonics crystal layer formed on said active layer.

28. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

sequentially forming a buffer layer, a first cladding layer, a light-emitting layer, and a second cladding layer on a first semiconductor substrate;

forming a photonics crystal layer on a second semiconductor substrate;

fusing the second cladding layer and the photonics crystal layer; and

removing the first semiconductor substrate and the buffer layer.

29. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

sequentially forming a buffer layer, a contact layer, a first cladding layer, a light-emitting layer, and a second cladding layer on a first transparent semiconductor substrate;

forming a photonics crystal layer on a second semiconductor substrate;

fusing the first semiconductor substrate and the photonics crystal layer; and

removing the second semiconductor substrate,

when the photonics crystal layer contains a through dislocation on a light extraction surface in a substantially vertical direction to pass light emitted by the light-emitting layer.

30. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

forming a contact layer on a semiconductor substrate;

corrugating a surface of the contact layer; and

sequentially forming a first cladding layer, a light-emitting layer, and a second cladding layer on the contact layer,

wherein a gradient index is given by the corrugated interface of the contact layer in contact with a first cladding layer, and light emitted by the light-emitting layer is reflected by the interface.

31. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

forming at least a light-emitting layer on a semiconductor substrate; and
processing an edge of the semiconductor substrate to round the edge.

32. (withdrawn) A semiconductor light-emitting element manufacturing method comprising the steps of:

forming a buffer layer on a first transparent semiconductor substrate;

forming a Bragg reflective layer on the buffer layer;

sequentially forming a light-emitting layer, a cladding layer, and a bonding layer on the

Bragg reflective layer;

forming a photonics crystal layer on a second semiconductor substrate;

bonding the cladding layer and photonics crystal layer via the bonding layer; and

removing the second semiconductor substrate.